Nuclear Waste Program

Contact: Jane Hedges, Program Manager, (509) 372-7905

Program Mission

To lead the effective and efficient cleanup of the United States Department of Energy's Hanford Site, to ensure sound management of mixed hazardous wastes in Washington, and to protect the state's air, water, and land at and adjacent to the Hanford Site.

Environmental Threats

The Hanford Site consists of 560 square miles located in southeast Washington. Hanford's half-century of nuclear materials production has created one of the world's most polluted areas. The cleanup challenges include:

- Removing and vitrifying (changing into glass) an estimated 53 million gallons of radioactive and chemically hazardous waste in Hanford's 177 underground storage tanks.
- Removing the residual sludge remaining after removal of 2,100 tons of disintegrating nuclear fuel rods stored in concrete basins near the Columbia River.
- Monitoring approximately 190 square miles of contaminated ground water that flows toward and eventually enters the Columbia River. Approximately 95 square miles of contaminated ground water currently violate both federal and state drinking water standards.
- Operating and closing 50 hazardous waste treatment, storage, and disposal sites, ranging from small demolition sites to half-mile-long concrete buildings.
- Cleaning up 1,500 waste sites, ranging from liquid waste disposal ditches to former reactor facilities, including 9.35 million tons of contaminated soil adjacent to the Columbia River.

Authorizing Laws

The United States Department of Energy (USDOE), which operates the Hanford Site, the federal Environmental Protection Agency (EPA), and the Department of Ecology, signed a comprehensive cleanup and compliance agreement on May 15, 1989. The Hanford Federal Facility Agreement and Consent Order, or Tri-Party Agreement (TPA), is an agreement that directs the Hanford Site cleanup and reflects a concerted goal of achieving, in an aggressive manner, full regulatory compliance and remediation with enforceable milestones.

The Nuclear Waste Program was created in support of the agency's commitment to the Tri-Party Agreement. USDOE was not required to comply with hazardous waste, air, and water pollution standards until the late 1980s. Over the next 30 years, the Tri-Party Agreement will bring the Hanford Site into compliance with the same rules that regulate private industry. Laws that govern the program include:

- *Resource Conservation and Recovery Act (RCRA)*
- *Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund)*
- *Toxic Substances Control Act*
- *Hazardous and Solid Waste Amendments Act*
- *Chapter 90.48 RCW, Clean Water Act*
- *Chapter 70.94 RCW, Clean Air Act*
- *Chapter 70.105 RCW, Hazardous Waste Management Act*
- *Chapter 70.105D RCW, Model Toxics Control Act*
- *Chapter 70.105E RCW, Cleanup Priority Act*

Constituents/Interested Parties

- *Congress, USDOE, EPA, the Nuclear Facility Safety Board, and U.S. Fish and Wildlife Agency*
- *Environmental Council of States, National Governor's Association, Western Governors' Association, USDOE's State and Tribal Government Working Group, and the Oregon Office of Energy*
- *Yakima, Umatilla, and Nez Perce Indian nations*
- *Franklin, Benton, and Grant counties and the cities of Pasco, Richland, Kennewick, Benton City, and West Richland*
- *Hanford Advisory Board, Heart of America Northwest, Hanford Watch of Oregon, Physicians for Social Responsibility, Washington League of Women Voters, and Columbia Riverkeeper*
- *Tri-Cities area business and labor groups*
- *Washington State Departments of Health and the Northwest Compact*

Major Activities and Results

Ensure Safe Tank Operations, Storage of Tank Wastes & Closure of the Waste Storage Tanks at Hanford

The agency protects public health and natural resources by ensuring the safe storage and management of 53 million gallons of high-level radioactive tank waste at the Hanford Nuclear Reservation. The Hanford Tank Waste Project is focused on permitting the double-shelled tank waste storage system, removing highly radioactive hazardous wastes from the single-shelled tanks, and beginning to close portions of the tank waste storage system. The tank waste will be removed and treated, leading to eventual closure of all 177 Hanford tanks by 2028. (Authorizing laws - 70.105 RCW and 173-303 WAC)

Result

Public health and environmental risk from the highly toxic, mixed radioactive and hazardous tank waste is reduced.

- Improve the safety of the double-shelled tanks by issuing a hazardous waste storage permit by November 2006.
- Move waste from 16 of 149 single-shelled tanks to double-shelled tanks by September 2006.
- Issue the single shell tank system hazardous waste closure plan.

Hanford's Tank Waste Treatment Plant under construction

Treat and Dispose of Hanford's High-level Radioactive Tank Waste

The agency protects public health and natural resources by providing regulatory oversight for the treatment and disposal of highly radioactive tank waste at the Hanford Nuclear Reservation. This activity is focused on the design, permitting, construction, and operation of the Hanford Waste Treatment Plant. (Authorizing laws - RCW 70.105RCW and 173-303 WAC)

Result

The Hanford Tank Waste Treatment Plant is scheduled to be operating by January 2011. However, recent construction delays indicate that this date will be missed by a few years. By 2028, 53 million gallons of high-level radioactive mixed waste from Hanford's interim storage tanks will be retrieved and treated.

- Continue on the critical path schedule (permit approvals are submitted and approved on time) for construction of the waste treatment.
- Complete work to demonstrate the viability of bulk vitrification (changing into glass) as an additional way to treat tank waste.
- Develop and complete the permit for Immobilized High-Level Waste Storage facility (Canister Storage Building) by January 2006 (permit application received June 2003) – measured by % complete on permitting schedule.

Ensure the Safe Management of Radioactive Mixed Waste at Hanford

The agency provides regulatory oversight for the safe storage, treatment, and disposal of liquid and solid dangerous and radioactive mixed wastes at the Hanford Nuclear Reservation, as well as radioactive mixed-waste sites throughout the state. It is the focus of this activity to regulate the management of this historic and ongoing waste stream and to assure the retrieval, treatment, and safe disposal of high-risk transuranic and other wastes currently buried in shallow, unlined trenches. (Authorizing laws – 70.105 RCW and 173-303 WAC)

Result

Treat and dispose of 2.6 billion gallons of liquid waste and 35 million cubic feet of solid wastes by 2017 to significantly reduce the risks posed by the waste to Hanford workers and the environment.

- Groundwater and closure plans for Hanford's Low-Level Burial Grounds will be developed by January 2007.
- Implement innovative waste disposal initiatives developed by the Hanford accelerated disposal workgroup.
- Make at least six shipments per month of contact-handled transuranic waste to the permanent disposal facility in New Mexico.

- Complete the US Ecology, Inc. site investigation and determine required cleanup actions by August 2006.

Clean Up and Remove Large, Complex, Contaminated Facilities throughout Hanford

The agency works on decommissioning large, complex, and high risk facilities throughout the Hanford Nuclear Reservation, including nuclear reactors and chemical processing facilities used for nuclear weapons material production. Transition of these facilities to safe and stable conditions requires coordination of multiple regulatory and technical requirements. Additionally, the agency is responsible for regulatory oversight of three active operating facilities not on the Hanford Site. (Authorizing laws – 70.105 RCW and 173-03 WAC 173-303)

Result

All major facilities on the Hanford Site will be decontaminated and decommissioned and either demolished or placed into a long-term safe storage configuration.

- Assure U.S. Department of Energy's (USDOE) establishment of a schedule, including detailed planning and milestones, for disposition of surplus facilities in Hanford's 300 Area by December 2005.
- Complete deactivation and dismantle of the 232-Z Building at the Hanford Plutonium Finishing Plant by September 2006.
- Close the Framatome liquid waste lagoons (not on Hanford) by August 2006.
- Complete transition of the 105-H Reactor to Interim Safe Storage by December 2005.
- Complete the Puget Sound Naval Shipyard mixed waste storage facility permit by June 2006.
- Develop a strategy and schedule for deactivation and decommissioning of all facilities in the central area of Hanford and incorporate the approach into the Tri-Party Agreement by July 2006.

Restore the Air, Soil, and Water Contaminated from Past Activities at Hanford

The agency protects public health and natural resources by working to restore the public use of air, soil, and water at the Hanford Nuclear Reservation. This is accomplished by; cleaning up contaminated sites from past Hanford activities; removing radioactive and hazardous contaminants, containing and monitoring residual contaminants, and mitigating natural resource damage at Hanford. (Authorizing laws - 70.105D RCW, 173-340 WAC, and Federal CERCLA 40 CFR 300)

Result

Public use of the air, soil, and water at Hanford will be restored and human and environmental risks associated with past Hanford activities are removed or reduced.

- Remove and dispose of 500,000 tons of contaminated soil per year through 2011.
- Complete clean up of 50 waste sites per year in Hanford's 200 Area from 2008 - 2024.
- Remediate three sites that are high risk to groundwater by 2006.
- Identify a preferred approach to clean up groundwater under Hanford's 300 Area by March 2007.

Major Issues

The USDOE Environmental Management Program is the largest environmental program in the nation. The cleanup of the Hanford Site is one of the largest elements of this program.

Tank Waste Cleanup

The cleanup of underground tanks at the Hanford Site will be one of the longest and most costly public works projects ever undertaken. A key element of the cleanup work has been retrieving radioactive wastes from failing and aging storage tanks and placing the waste in interim, stable storage tanks. Construction of the tank waste treatment facility by USDOE is roughly 39% complete. However, the scheduled completion date of January 2011 has slipped. The agency will continue to use available legal and political tools to prevent further schedule slips.

An old tank next to the Columbia River is torn down and will be safely disposed

Continuation of Hanford Cleanup Progress
Cleanup progress has started on major Hanford facilities. The USDOE must be encouraged to continue seeking ways to maintain progress on the stabilization and decommissioning of these facilities to reduce hazards to workers and the environment. Progress must be maintained on issuing closure or final operating permits for waste transportation, storage, and disposal at the Hanford Site.

Protection of the Columbia River
Work must continue to cleanup sites that could add to groundwater or river contamination, including the removal of decaying fuel rods from concrete storage areas located near the Columbia River. Groundwater cleanup and close monitoring of liquid waste discharges and cleanup must also continue.

The Columbia River borders the Hanford Nuclear Reservation

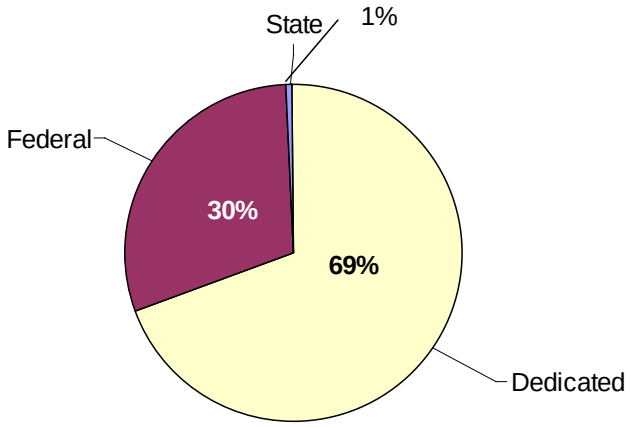
Decisions about Additional Waste Storage or Treatment at Hanford
Many recent and pending national decisions link the cleanup of former nuclear weapons plants and the disposition of surplus weapons materials. Hanford is a potential storage, treatment, and disposal site for not only its own wastes and materials, but also those from many other sites in the country. At the same time, long-term plans for Hanford cleanup include shipping transuranic and high-level wastes, spent nuclear fuel, and surplus plutonium to other sites for disposal. The agency participates actively in national forums that deal with these issues and advises state policy makers on the state's response to these cleanup plans.

Nuclear Waste Program Budget

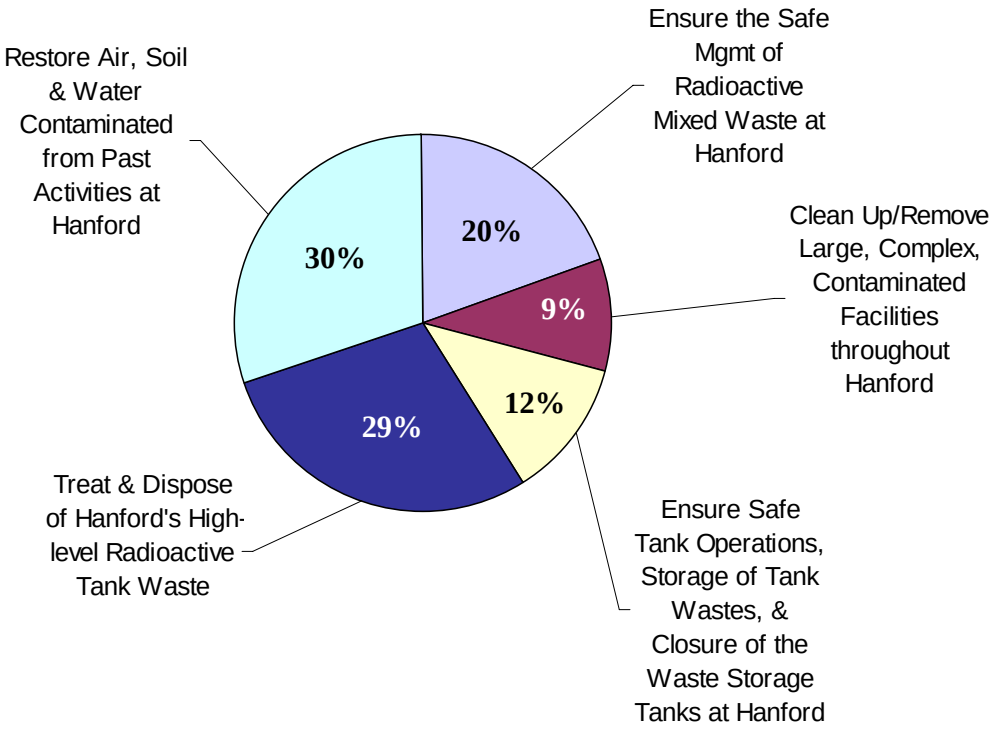
Budget = $14.7 million; FTEs = 72.8

State	($) Amount	Sources	Uses
General Fund – State	80,527	Multiple	Air Pollution Control oversight of Hanford activities with potential for contaminated air emissions.
Federal			
General Fund – Federal	4,462,553	Federal grants	Oversee removal of radiological and chemical contaminants on Hanford, provide regulatory assistance to USDOE and USEPA and implement the provisions of the Hanford Federal Facility Agreement and Consent Order.
Dedicated Funds			
General Fund – Private Local	163,854	The Department of Ecology subleases 100 acres of land to U.S. Ecology, Inc. for operation of the radioactive waste disposal site	All moneys except the $600 required for Ecology's annual prime lease payment to US DOE are passed through to Benton County.
Site Closure Account	566,608	Site use permit fee for generators, packagers, or brokers using the Hanford Low-Level Radioactive Waste Disposal Facility are deposited into the Site Closure Account	Policy oversight of commercial low-level radioactive waste disposal within the state and the Northwest Interstate Compact on low-level radioactive waste management.
State Toxics Control Account – Mixed Waste Fees	8,949,319	Permit fees for Mixed Waste Facilities	Oversee management of hazardous and radioactive mixed wastes on Hanford and other mixed waste facilities, provide regulatory assistance to USDOE and USEPA and implement the provisions of the Hanford Federal Facility Agreement and Consent Order and the Hazardous Waste Management Act.
Water Quality Permit Fees	245,297	Fees collected for waste water discharge permits	Actions needed to maintain safe facilities that treat wastewater discharges on the Hanford site
Air Operating Permit Fees	217,625	Permit fees collected for air contaminant sources	Actions needed to maintain safe facilities that treat waste discharges on the Hanford Site
TOTAL	**$14,685,783**		
Capital Budget Funding:			
Site Closure Account	6,267,202	Fee charged to generators of radioactive waste	Investigation, closure, and decommissioning of the Hanford low-level radioactive waste disposal facility

Nuclear Waste Program
Dollars by Fund Source



Nuclear Waste Program Dollars by Activity



Activity	Dollars	FTEs
Restore the Air, Soil, and Water Contaminated from Past Activities at Hanford	$2,895,235	14.0
Clean Up and Remove Large, Complex, Contaminated Facilities throughout Hanford	$1,398,447	7.2
Ensure Safe Tank Operations, Storage of Tank Wastes, & Closure of the Waste Storage tanks at Hanford	$1,742,692	9.8
Treat and Dispose of Hanford's High-level Radioactive Tank Waste	$4,205,778	23.6
Restore the Air, Soil, and Water Contaminated from Past	$4,443,630	18.4
Total Nuclear Waste Program	**$14,685,783**	**73.0**